for the determination of solar parallax. The next most favourable opposition will occur in 1900 in November and December, so he gives a rough ephemeris for this period of approach. As this table will probably be useful for reference, we reproduce it below:—

	α	δ	Δ
	h. m.	°	
1900 Nov. 15	1 56	+ 54·7	0·358
20	45	54·0	·346
25	38	52·7	·336
30	32	51·5	·328
Dec. 5	30	49·7	·322
10	32	48·2	·314
15	34	46·0	·309
20	42	43·9	·310
25	1 48	+ 41·3	0·308

In the northern hemisphere the position of the planet among the stars can be fixed from hour to hour both by the photographic telescope and the heliometer. "The combination of observations," as Prof. Newcomb remarks, "in the eastern and western hemispheres will then, it may be hoped, suffice for the best determination of the solar parallax yet made by direct measurement."

A NEW ALGOL VARIABLE.—Mr. Edwin F. Sawyer describes, in the *Astronomical Journal* (Nos. 448–450), the observations of a variable which he shows to be of the Algol type. The star in question is D.M. +12° 3557, and has a period of 21h. 21m., the fluctuations in brightness being about half a magnitude, namely, from 7·0 to 7·5. The intervals of time from maximum to minimum and from minimum to maximum occupy individually two hours and a half. The table containing the observations, which Mr. Sawyer has made between September 15, 1895, and October 27 of this year, shows that the star was near its minimum on September 9 and 16, October 3, 10, 11, 12, 20 and 27. Combining these observations with others made at Potsdam, the epoch and period have been approximately determined as 1898 October 3, 13h. 1m. Greenwich mean time, and + 0d. 21h. 21m. E. respectively. It is not without interest to note that this star, which is No. 2510 of the *Potsdam Photometric Catalogue*, was observed once each by Kempf and Müller on September 24, 1888, as 7·74m., and on October 29, 1890, as 7·57m. On each of these occasions the variable was near a minimum; but as the observations agreed so well, the final value 7·66m. was entered in their catalogue. The magnitude given in the *Durchmusterung* was 7·0.

THE GEMINIDS.—So unfavourable was the weather for meteor observations during last month, that it is very doubtful whether the Leonids and Andromedes were observed at all in England. At the end of this week, December 10–12, there will be a well-known shower emanating from Gemini; but although furnishing us with thirty or forty meteors in an hour, it does not compare with the sometimes magnificent displays that have been set down to the other two meteor swarms above mentioned. The absence of the moon on this occasion should render observations favourable.

THE ANNIVERSARY MEETING OF THE ROYAL SOCIETY.

ON Wednesday in last week, being St. Andrew's Day, the Anniversary Meeting of the Royal Society was held in their apartments at Burlington House. The Auditors of the Treasurer's accounts having read their report, and the Secretary having read the list of Fellows elected and deceased since the last anniversary, the President (Lord Lister) proceeded to deliver the anniversary address. After the first part, containing obituary notices of the deceased Fellows, it proceeded as follows:—

The business of the Society during the past year has been fully dealt with in the Report of the Council[1]; and I have little to add to that statement. On the death of Sylvester, it occurred to some admirers of his great mathematical genius that it would be well to create a permanent memorial of him in connection with the Society by founding a medal to be called after his name. The Council, though not disposed as a general rule to add to the numerous distinctions of that character already at their disposal, felt that this was an exceptional case, partly on the ground of Sylvester's great distinction, and partly because, while there are several specialised medals, there is none devoted to the supremely important subject of pure mathematics. They, therefore, expressed their grateful approval of the proposal; and I have now to announce that the fund raised for the purpose being closed, amounting to rather more than 880*l.*, a clear capital of 800*l.*, together with the dies, will shortly be transferred to the Society. The dies are being engraved after designs by Sir John Evans.

The help given in this matter by our Treasurer is but a small sample of the multitude of services which he has rendered to the Society during the past twenty years, in addition to the discharge of his official duties. How well these have been performed they only can know who, like myself, have served with him in office. The debt which the Royal Society owes to Sir John Evans has been referred to by the Council in terms of high, though not exaggerated, eulogy. I cannot but add the expression of my personal sense of the deep, I had almost said the irreparable loss which the Society sustains by his retirement.

The question who should be recommended to your suffrages as his successor has engaged the anxious deliberation of the Council. As stated in the report, various considerations have weighed with them. But I feel confident that, as time passes, the wisdom of the decision arrived at will be universally recognised.

Sir George Hamilton has, I believe, done wisely in sending out to India a British Commission, containing a majority of scientific experts, to inquire into the subject of the Plague; and I am glad that so distinguished a Fellow of the Society as Prof. Fraser of Edinburgh has been able to accept the position of Chairman.

The recent sad occurrences at Vienna may suggest the fear that our countrymen engaged in this duty, will be subjected to grave danger. But the disease as it showed itself in Vienna, was of an entirely exceptional form; and if we consider how few of the medical men and nurses who have for a long time past been engaged in actual attendance on plague-stricken patients, have fallen victims to the disease, we may dismiss from our minds the idea of any serious risk to the commissioners.

Their chief duties will, I believe, be to sift and report upon the somewhat heterogeneous and scattered pieces of evidence already published by various observers as to the nature and modes of transmission of the complaint, and the best means of dealing with it. One of the subjects which will engage their attention will be the efficacy or otherwise of the preventive injections of Monsieur Haffkine. On this question our Fellows are likely to have an opportunity of judging for themselves; for Haffkine himself has agreed to come over to this country in May, a time of the year at which his services in India can best be spared, in order to bring his facts before us at one of the "meetings for discussion."

There is no subject in Biology of greater interest at the present time, whether in a scientific or practical point of view, than that of the "serum therapeutics" of infective diseases. According to a recent report, which bears throughout the characters of authenticity,[1] a great success in this direction has been lately achieved. Mr. Chamberlain, whose enlightened action regarding malaria and allied disorders in Africa, has been referred to in the Council's report, consulted the Royal Society about two years ago as to the possibility of devising some means of arresting the fearful ravages of rinderpest among the cattle in the southern parts of that continent. The stamping-out process by wholesale slaughter which, at great expense to the country, formerly proved effectual in England, could not be thought of in South Africa, whose vast regions are sparsely populated, while buffaloes and other animals beyond human control are able to contract and spread the disease. But could nothing be done by modern scientific methods? The subject appeared full of hope, because, as was shown long ago in this country by Burdon-Sanderson, rinderpest resembles small-pox in the fact that one attack, if recovered from, protects against a recurrence of the disease.

Mr. Chamberlain was fortunate in securing, with the consent of the German Government, the services of that distinguished bacteriologist, Prof. Koch. We rejoiced to read the reports of his masterly researches and of the brilliant results which he obtained, promising to effect all that could be desired. The process which he devised did indeed, as we are informed, save the lives of thousands of cattle. In course of time, however, it turned out that the immunity conferred by it was not sufficiently permanent, while it was attended with some other serious practical inconveniences. Hence it became necessary to seek for some more perfect method. This has been done by a German investigator, Dr. Kolle, who went out to continue Koch's work, acting in co-operation with one whom I am patriotic enough to be pleased to speak of as an Englishman, Dr. George Turner, the Government Health Officer of Cape Colony. Koch had early ascertained that the serum of an animal which had recovered from rinderpest, if injected under the skin of a healthy animal, conferred upon it complete though very transient immunity. This was the basis of the work of Kolle and Turner, who, after a long series of laborious investigations, have, it appears, at length attained their object by simultaneously injecting, at two distant parts of the animal's body, a little of the antitoxic serum, and a dose of the blood of a diseased animal, which, without the serum, would prove certainly fatal. The result is that the beast becomes affected with the disease in a form so greatly modified that it causes as a rule, only slight symptoms, and sometimes none at all; and, though it occasionally proves fatal, it does so in considerably less than 1 per cent. of the cattle subjected to it, contrasting most strikingly with ordinary rinderpest, which kills from 80 to 90 per cent. of those affected. And, just as in the case of vaccination, this modified and mild form of the disease confers protection against it in its most virulent condition; so that even the beasts in which the treatment had produced no symptoms at all remained absolutely unaffected when tested subsequently with a dose of infective material sufficient to kill 10,000 full-grown oxen. This immunity is also of a very lasting character; and, indeed, so far as experience has yet gone, it may be as permanent as that caused by an ordinary attack.

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[1] This Report has not reached us.

[1] *Vide* "Rinderpest in South Africa," by John Maberly. *The Lancet*, November 5, 1898.

This process was very extensively employed as a prophylactic in the herds of South Africa, during the raging of the epidemic, and with most remarkable success. According to an estimate based on the Cape Government statistics, the effect of the preventive inoculations carried out during the last two years, including those by Koch's method, has been to cause the saving of the lives of upwards of 700,000 head of cattle. It is believed that, had it not been for these prophylactic labours, the number of cattle remaining in the country, instead of being, as now, upwards of a million, would have been little more than 300,000. And it is to be remembered that these are the gross results, including not only those of the present method, but also those of the comparatively imperfect processes that led up to it.

Assuming, as I believe we may, that the report from which these statements are drawn is entirely worthy of confidence, we have here a striking example of beneficent application of science.

Among the many important matters that have come before us during the past year, some in the domain of chemistry seem to stand out as especially striking. One of these is the liquefacton of hydrogen by Prof. Dewar. In previous attempts by Olszewski and himself, drops of clear liquid had been seen which it was supposed were composed of that element; but no one could be quite sure that these were not merely the result of the condensation of other gases which it is extremely difficult to get rid of completely, None could be certain that hydrogen, if liquefied, would not present, like mercury, the appearance of a metal. Dewar, however, after long continued persevering effort, succeeded in producing a liquid in bulk, with well defined meniscus, which, in one of his wonderfully effective vacuum-coated vessels, could be manipulated experimentally, as liquid air had been, allowing at once the determination of some of its physical constants, and liquefying the previously refractory helium, implying a lower temperature than had ever before been attained by man. This achievement is not only of supreme interest in itself but opens up an entirely new field for investigations into the properties of matter.

Liquefied gases have been the means by which Prof. Ramsay has been able to obtain his recent very remarkable results. As chairman of the Chemical Section of the British Association at Toronto he had boldly taken as the subject of his opening address an unknown element, of the existence of which he felt confident from theoretical considerations. He believed that there must exist such a body with an atomic weight intermediate between those of argon and helium. He sought for this element, hoping to find it locked up, like helium, in some mineral, and in other ways tried to discover it. But in a paper presented to the Society early in this year, he was obliged to confess that all his efforts had been fruitless. At the same time in that paper he again expounded his reasons for believing in the existence of the unknown body. He has since adopted a new line of investigation. Having at his disposal a large supply of liquid air, he tried with it the method of fractional distillation; and after allowing the main bulk to evaporate, proceeded to volatilise and test the residue. In this he did indeed find what appears to be a new elementary body, to which he gave the name of Krypton. But so far from complying with his requirements, this gas was found to be much denser than argon; indeed it is thought probable by Ramsay that it has twice its density, and therefore, being, like argon, monatomic, twice its atomic weight. Ramsay, however, had another resource at his command. Aided by Mr. Travers, who has throughout this inquiry most ably seconded him, he had, by long continued labour, procured a large store of argon. This he liquefied by subjecting it to the cold of boiling liquid air; and surmising that any element lighter than argon would be present in the superjacent vapour, he collected this and subjected it to analysis. And now he found what he had so long sought for, a new elementary gas with atomic weight intermediate between those of argon and helium. To this he gave the name of Neon.

But this was not all. As the argon liquefied at the low temperature caused by boiling liquid air, a white solid was seen to be deposited in it, and this remained after all the liquid had evaporated. This solid, on being volatilised and tested, was found to be, as is believed, another new element. This, though very unlike argon in physical characters, possesses a nearly, if not absolutely identical atomic weight; just as some metals with very similar atomic weights differ in their qualities. This element has therefore received the appellation Metargon.

Such is a most rough sketch of two samples of the work of the Society during the past year.

The President then proceeded to award the medals.

The Copley Medal is awarded to Sir William Huggins for his great achievements in the application of spectrum analysis to the heavenly bodies.

His first results in this direction were obtained early in 1864. At the commencement of his labours in his observatory at Tulse Hill, he worked in conjunction with the late Prof. Miller. By visual observation a multitude of lines in the spectra of Betelgeux and Aldebaran were carefully measured, mapped, and compared with those of terrestrial elements. This is notable as being the first application of thoroughly precise methods to the study of the spectra of stars, and as showing the presence of terrestrial elements in them.

On August 29, 1864, Huggins discovered the bright line spectrum characteristic of certain nebulae. This must always be regarded as one of his chief titles to fame. It was an epoch-making discovery, for it established in an unquestionable manner that some of these objects were veritably gaseous. The interest of this work was greatly increased by the fact that, by comparison with the spectrum of terrestrial hydrogen, Huggins showed that one of the nebular lines belonged to that substance.

In 1868, Huggins applied the principle of Doppler to the measurement of stellar movements in the line of sight. He thus originated a department of spectroscopy which has been considered to be perhaps the most instructive application of spectrum analysis to astronomy. Notable results were obtained by Huggins himself in the application of this method, and it has led to many remarkable developments in the hands of other astronomers. By following the course which Huggins originated, wholly new classes of double stars have been revealed, the movements of Algol have been explained, and the mathematical theory of Saturn's ring has been visually confirmed.

The appearance of Winnecke's comet, in the year 1868, gave Huggins the opportunity of studying, for the first time, the spectrum of one of those bodies. He found bright lines in the spectrum of the comet which agreed with those of olefiant gas. Thus he established the fact that carbon was a constituent of comets.

The spectrum of Vega had been photographed by H. Draper, in 1872. In 1876, Huggins obtained a photograph of the spectrum of the same star. He then discovered the remarkable series of hydrogen lines characteristic of the spectra of the class of so-called white stars which includes Sirius as well as Vega. The very beautiful system of hydrogen lines in this ultra-violet spectrum was described by Huggins to the Royal Society in 1879.

In 1881, Huggins succeeded in photographing the spectrum of Tebbutt's comet, and, availing himself of the various improved appliances which were suggested by his unique experience, he photographed the spectrum of the Orion nebulae in 1882. In 1888, a still better photograph of the same spectrum was obtained by Dr. and Mrs. Huggins. There was a special interest about this plate. It showed that certain bright lines were common to the nebula and to the trapezium stars, thus establishing the connection between the stars and the nebulae. Further investigations of the same object were also made in 1889. In that same year the spectrum of Uranus was investigated photographically by Dr. and Mrs. Huggins, and was shown to be essentially solar. In 1890, the chief line in the nebular spectrum was accurately re-determined, and an investigation was made by Dr. and Mrs. Huggins of the spectra of Wolf and Rayet's stars in Cygnus.

The most recent work from the Tulse Hill Observatory has been the investigation of the remarkable ultra-violet lines of calcium, by which the characteristics of these lines in the solar spectrum have been explained.

A sketch of the early history of spectroscopic astronomy was given by Dr. Huggins to the British Association, at Nottingham, in 1866. A review of the same subject a quarter of a century later is found in his Presidential Address at the Cardiff Meeting of the Association in 1891. Reference must also be made to a lecture on the remarkable star, Nova Aurigae, given at the Royal Institution in 1892.

A full list of Huggins's papers, up to the year 1894, is found in Frost's translation of Scheiner's "Astronomical Spectroscopy," published by Ginn and Co., 1894.

The Rumford Medal is given to Prof. Oliver J. Lodge in recognition of his researches on radiation and on the relations between matter and ether.

In dealing with the history of the discovery by Prof. Hertz of electro-magnetic radiation, it would be impossible to pass over the work done previously, or simultaneously, by Prof. Lodge, on the surging or oscillatory character of the transmission of electric discharges along wires.

Prof. Lodge gave an account of his observations in his lectures to the Society of Arts, delivered in 1888, which are incorporated in his treatise on "Lightning Conductors and Lightning Guards," published in 1892.

The researches of the English and German physicists were entirely independent, and though the merit of the actual discovery of electro-magnetic radiation belongs certainly to Prof. Hertz, there seems little reason to doubt that Prof. Lodge's experiments would have led him eventually to the same result. Prof. Hertz himself says, in the introduction to his work, "Ueber die Ausbreitung der Elektrischen Kraft": "Inasmuch as he" (Prof. Lodge) "entirely accepted Maxwell's views, and eagerly strove to verify them, there can scarcely be any doubt that, if I had not anticipated him, he would also have succeeded in observing waves in air, and thus also in proving the propagation with time of electric force" (p. 3, English edition).

When the discovery of electro-magnetic radiation was announced, Prof. Lodge at once recognised its great importance, and by his lectures and writings contributed largely to make known to this country the brilliant achievement of Hertz. At the same time, by his experimental investigations, he added considerably to the knowledge of the subject, and materially strengthened the evidence that electro-magnetic waves exhibit similar properties to those which have been for a long time assigned to the ethereal disturbances assumed to constitute the mechanism by which are produced the phenomena of light.

Prof. Lodge's introduction of the "coherer"—an instrument the action of which is based on observations made independently by himself and M. Branly—as a substitute for the Hertz "resonator," has increased in a marked degree the facility for reproducing and extending the experiments of Prof. Hertz, and has furnished the means of exhibiting much more conspicuously he results obtained.

More recently Prof. Lodge has been engaged in investigating the phenomena presented by the Röntgen rays, and the circumstances under which these rays are produced. He has also studied the effect on the light emitted from a source placed in a powerful magnetic field, which was discovered by Prof. Zeeman.

In connection with all these branches of inquiry, he has communicated to scientific societies and to periodicals a large number of papers, containing valuable contributions to our knowledge of radiations in ether, and suggestive speculations as to the properties of the ether itself.

With the object of obtaining some information as to the properties of the ether, and of ascertaining whether any mechanical connection can be detected between matter and ether, Prof. Lodge carried out an elaborate series of experiments, of which the record appears in the *Philosophical Transactions*, vols. 184 and 189. The special aim of this research was to determine whether a moving mass communicates any corresponding motion to the ether in its immediate neighbourhood, or, in other words, to determine whether the ether has any apparent adhesion to matter, and possesses any property of the nature of, or analogous to, viscosity.

His method of observation is to divide a beam of light into two of equal intensity, and to cause the latter to traverse in opposite directions an annular space in a steel or iron disc. The two beams are superposed so as to produce interference-bands. If any appreciable motion can be communicated to the ether in the annulus by causing the disc to revolve rapidly round the common axis of the disc and annulus, it is practically certain that some change must be produced in the velocity of the light in the two beams, and this change must show itself by an observable displacement of the interference-bands.

No such displacement was observed with any velocity of the disc which could be attained, nor could any shift of the bands be detected when the annulus in the revolving disc was converted into a powerful magnetic field, or was subjected to strong electrification.

The absence of any noticeable effect upon the light in these experiments is taken to indicate that matter has no appreciable hold upon the ether in its neighbourhood, and that no power of gripping the ether is conferred upon matter either by magnetisation or electrification of the kind employed.

[As it is a condition that a part at least of the work on which a claim to the Rumford Medal can be founded should have been published during the two years preceding the award, a list is appended containing the titles of some of Prof. Lodge's papers which have appeared during 1896–98:—

(1) "Experiments on the Absence of Mechanical Connection between Ether and Matter" (*Phil. Trans.*, A, 1897, vol. 189).

(2) "The Influence of a Magnetic Field on Radiation Frequency" (*Roy. Soc. Proc.*, vol. 60).

(3) "Further Note on the Influence of a Magnetic Field on Radiation Frequency" (*Roy. Soc. Proc.*, vol. 61).

(4) "Note on Mr. Sutherland's Objection to the Conclusiveness of the Michelson-Morley Aether Experiment" (*Phil. Mag.*, vol 46).

(5) "On the Rays of Lenard and Röntgen" (*Electrician*, vol. 46).

(6) "On the Present Hypotheses concerning the Nature of Röntgen Rays" (*Electrician*, vol. 36).

(7) "Further Progress in Radiography" (*Electrician*, vol. 36).

(8) "Röntgen Rays" (*Electrician*, vol. 37).

(9) "The Surviving Hypothesis concerning the X-Rays" (*Electrician*, vol. 37).

Several short notes on subjects connected with Radiation have appeared in NATURE during 1896–98.]

One of the Royal Medals is bestowed upon the Rev. John Kerr, as the author of extremely important experimental researches on the optical relations of electricity and magnetism.

Dr. Kerr has made a name, which will always be remembered in the history of science, by his experiments on the optical effects of electrical and mechanical stress, and on the polarisation of light reflected from the surface of a magnetised body.

His observations on electrical stress were recorded in a series of papers published in the *Phil. Mag.* in 1875, 1879 and 1882, in which he demonstrated the fact that the velocity of polarised light in a body subjected to electrostatic influence is different according as the plane of polarisation is parallel or perpendicular to the lines of electric force.

In these experiments he was led to use mechanically strained glass as an auxiliary apparatus, and in October 1888, he published, in the *Phil. Mag.*, an important paper on "The Birefringent Action of Strained Glass."

In 1877, Dr. Kerr (*Phil. Mag.* [5], vol. 3, p. 321) showed that if plane polarised light is reflected from a magnetised surface, the polarisation of the reflected ray is affected by the magnetic state of the surface. This result was of the highest theoretical interest, and it has been a matter of admiration and wonder to subsequent investigators that Dr. Kerr should have been able to learn so much with the comparatively simple and ineffective apparatus at his disposal.

Both of Dr. Kerr's great researches have been the starting points of numerous inquiries. His experiments on electrical stress have been repeated and extended by Gordon, Quincke, Röntgen, and others, while Fitzgerald, Righi, Kundt, Lorentz, Sissingh, Zeeman, J. J. Thomson, Du Bois, Goldhammer, Drude and Leathem, are among those who have been occupied with the extension or theoretical meaning of his work.

Dr. Kerr's researches rank among the most important of those which have been made since the time of Faraday.

The other Royal Medal is conferred on Mr. Walter Gardiner, who has taken a leading part in what is perhaps the most important recent advance in Vegetable Histology, namely, the discovery that the protoplasm in the tissues of plants is continuous from cell to cell, and not broken up into isolated portions by the cell-walls. His first work on the subject dates from 1882, when he published in the *Quarterly Journal of Microscopical Science* a short paper on "Open Communication between the Cells in the Pulvinus of *Mimosa pudica*." Up to that time protoplasmic continuity in plants had only been recognised in the special case of the sieve-tubes and in the endosperms of three species; and even in these instances the evidence that the connecting threads were really of protoplasmic nature was not, in Mr. Gardiner's opinion, conclusive.

In 1883 he presented to the Royal Society an extensive memoir "On the Continuity of the Protoplasm through the Walls of Vegetable Cells" (*Phil. Trans.*, pt. 3, 1883), in which he demonstrated that this structure is constant in the endosperm, and that it also occurs in various tissues of the plant. Mr. Gardiner at that time thought it probable that the phenomenon might be of universal occurrence, and dwelt on its great physiological significance.

In the meantime other observers took up the subject, and the generality of protoplasmic continuity in plants came to be widely recognised by botanists. Mr. Gardiner, however, was severely critical of his own methods and results, and was not satisfied that the evidence, though conclusive in so many cases, was strong enough to bear the weight of so wide a generalisation. He therefore set himself, within the last few years, to re-investigate the subject, with the aid of more refined processes which he had adapted and elaborated.

The results of his renewed work were communicated to the Royal Society last year, in a paper on "The Histology of the Cell-wall, with special reference to the Mode of Connection of Cells" (*Roy. Soc. Proc.*, vol. 62, p. 100). In this work he shows for the first time, that the connecting fibrils of protoplasm can be demonstrated with certainty in all kinds of vegetable tissues, and he is also enabled to make the important statement that "the threads appear to be present *ab initio.*"

Mr. Gardiner has done much good work in other departments of the Histology and Physiology of Plants, notably on glandular structures; on the function of tannin; on protoplasmic contractility; and on the phenomena accompanying stimulation in insectivorous plants. His scientific reputation, however, rests chiefly on the fact that to him, more than to any other investigator, is due the discovery of the continuity of protoplasm in plants—a discovery which essentially modifies our whole conception of vegetable organisation.

The Davy Medal is awarded to Prof. Johannes Wislicenus for his numerous and important contributions to Organic Chemistry, embodied in a series of papers extending over the last thirty-five years, and published in the *Berichte* of the German Chemical Society, Liebig's *Annalen*, and elsewhere. The researches undertaken by Prof. Wislicenus and his pupils, inspired by the zeal of their master, have flowed, almost without intermission during the period mentioned, from the laboratories of Zürich, Würzburg and Leipzig. Among his earlier work may be mentioned his classical researches on the lactic acids, which finally settled the much-debated questions concerning the combination of acid and alcoholic properties in oxy-acids in general. These researches threw much light on the subject of the isomerism of the oxypropionic acids. He ascertained the nature of the action of silver oxide on β-iodopropionic acid, while his improved synthesis of ordinary lactic acid from aldehyde, and of β-oxypropionic acid from glycollic chlorhydrin, established the relations of these acids to their respective radicles, ethylidene and ethylene. His study of sarcolactic acid was a notable contribution to the subject of the optical activity of organic compounds, and resulted in the important discovery for the first time of two substances having a structure of proved chemical identity, and yet possessing different physical properties.

The prominent part taken by Wislicenus in unravelling the reactions concerned in the formation of aceto-acetic ester, and in the application of this compound as a synthetical agent, is well known to all chemists. He devised a practical method for its preparation, and was the first to use the isolated substance as the starting point of synthetical operations. He defined the acid property of the replaceable hydrogen atom in this ester, and its homologues, and devised the now familiar methods for the use of the sodium derivatives in organic syntheses. He discovered the "acid" decomposition of the ester and its derivatives, and established the conditions under which the "ketonic" decomposition could be effected. He utilised his methods for the synthesis of compounds of the most varied types, such as mono- and polybasic acids, both saturated and unsaturated, oxy-acids and ketonic acids, ketones and alcohols.

More recently the name of Wislicenus has become closely associated with discovery in the new field of stereo-chemistry. As early as 1869 he pointed out the insufficiency of the ordinary "constitutional" formulae to explain the isomerism of ordinary and active lactic acid, and clearly stated that the explanation was to be found in the tridimensional arrangement of the atoms in space. Van 't Hoff states that it was this statement by Wislicenus which suggested to him the ideas which culminated in his well-known theory of the asymmetric carbon atom. Wislicenus boldly advocated the introduction of geometrical conceptions into the doctrine of the constitution of chemical molecules, and in his memoir "Ueber die räumliche Anordnung der Atome in organischen Molekulen," published in 1887, he extended the hypothesis of van 't Hoff, and showed how the spacial arrangements could be determined in special cases. The new ideas contained in this memoir had a most stimulating effect on the study of stereo-chemical isomerism. Of his own and his pupils' work in this field may be mentioned investigations of the tolane dichlorides, acetylene-dicarboxylic acid, the butylenes and derivatives of crotonic acid.

The Darwin Medal is given to Prof. Karl Pearson in recognition of the great biological importance of his work upon the Theory of Probability, and its relation to vital statistics. The importance of the theory of probability in dealing with the problems of organic evolution was first seen by Mr. Francis Galton. Prof. Pearson's merit lies in the fact that he has so far extended the mathematical theory of chance as to make it possible to treat generally problems which could previously be dealt with only in a few special cases. Prof. Pearson has shown, in various memoirs published in the *Philosophical Transactions* during the last five years, that the amount and frequency of organic variation, the degree of interdependence between one variable organ and others, the phenomena of heredity, and the intensity of selective destruction can be treated quantitatively by means of his development of the calculus of probability; and he has given examples of the treatment of variation and inheritance in man, and in a number of animals and plants.

A calculus by which the fundamental phenomena of organic evolution can be treated quantitatively provides an engine of biological research of a new and powerful kind, and, as a stimulus to new and more accurate investigation of the phenomena of organic evolution, it is of very great importance. The hypothesis of natural selection has hardly been proved by the direct demonstration of a selective death-rate, except in few and simple cases. The demonstration of such selective death-rate in more complex cases is rendered possible by Prof. Pearson's work. Such demonstration is the natural and logical sequel to the work of Darwin himself, and there is a peculiar fitness in awarding the Darwin Medal to the man who has made it possible.

The Society next proceeded to elect the officers and Council for the ensuing year. The list has already appeared in NATURE (p. 39).

In the evening the annual dinner took place at the Whitehall Rooms. Among the guests of the Society who made speeches were the Lord Chancellor, Lord Kitchener, and Lord Curzon.